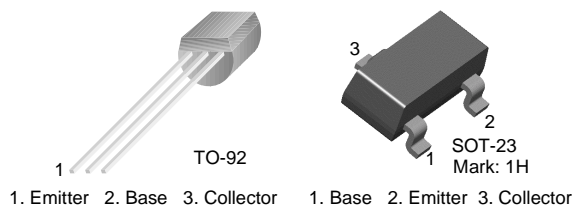


## MPSA05/MMBTA05

### NPN General Purpose Amplifier

- This device is designed for general purpose amplifier applications at collector currents to 300mA.
- Sourced from process 10.



### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	60	V
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	4.0	V
$I_C$	Collector current - Continuous	500	mA
$T_J, T_{stg}$	Junction and Storage Temperature	-55 ~ +150	$^\circ\text{C}$

### Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristics</b>						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage *	$I_C = 1\text{mA}, I_B = 0$	60			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	4			V
$I_{CEO}$	Collector Cutoff Current	$V_{CE} = 60\text{V}, I_B = 0$			0.1	$\mu\text{A}$
$I_{CBO}$	Emitter Cutoff Current	$V_{CB} = 60\text{V}, I_E = 0$			0.1	$\mu\text{A}$
<b>On Characteristics</b>						
$h_{FE}$	DC Current Gain	$I_C = 10\text{mA}, V_{CE} = 1.0\text{V}$ $I_C = 100\text{mA}, V_{CE} = 1.0\text{V}$	100 100			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 100\text{mA}, I_B = 10\text{mA}$			0.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 100\text{mA}, V_{CE} = 1.0\text{V}$			1.2	V
<b>Small Signal Characteristics</b>						
$f_T$	Current Gain Bandwidth Product	$I_C = 10\text{mA}, V_{CE} = 2\text{V},$ $f = 100\text{MHz}$	100			MHz

\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

### Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max.		Units
		MPSA05	*MMBTA05	
$P_D$	Total Device Dissipation	625	350	mW
	Derate above $25^\circ\text{C}$	5	2.8	mW/ $^\circ\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3		$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	357	$^\circ\text{C}/\text{W}$

\* Device mounted on FR-4 PCB  $1.6" \times 0.06"$

# Package Dimensions

## TO-92



Dimensions in Millimeters

Package Dimensions (Continued)

SOT-23



Dimensions in Millimeters

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